CMD046N08/CMU046N08

80V N-Channel MOSFET

General Description

The 046N08 uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications.

Product Summary

BVDSS	RDSON	ID
80V	4.4mΩ	90A

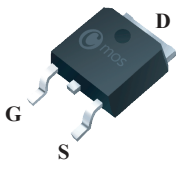
Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

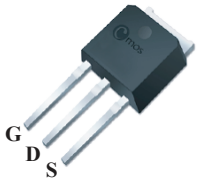
Features

- Lower On-resistance
- 100% Avalanche Tested
- RoHS Compliant

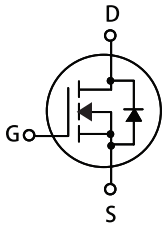
TO-252/251 Pin Configuration



TO-252



TO-251



Type	Package	Marking
CMD046N08	TO-252	CMD046N08
CMU046N08	TO-251	CMU046N08

Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	80	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	90	A
I_D@T_C=100℃	Continuous Drain Current	63	A
I_{DM}	Pulsed Drain Current	360	A
E_{AS}	Drain-Source Avalanche Energy [1]	840	mJ
P_D@T_C=25℃	Total Power Dissipation	150	W
T_{STG}	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	-55 to 175	℃

Thermal Data

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(6 cm^2 cooling area) [2]	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	1.2	℃/W

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250μA	80	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=28A	---	3.6	4.4	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=80V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±20V, V_{DS}=0V	---	---	±100	nA
R_g	Gate Resistance	V_{DS} =10V , V_{GS}=0V , f=1MHz	---	1.5	---	Ω
Q_g	Total Gate Charge	I_D=45A V_{DD}=40V V_{GS}=0 to 10V	---	42	---	nC
Q_{gs}	Gate-Source Charge		---	14	---	
Q_{gd}	Gate-Drain Charge		---	9	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=40V R_G=1.6Ω V_{GS}=10V I_D=45A	---	15	---	ns
T_r	Rise Time		---	10	---	
$T_{d(off)}$	Turn-Off Delay Time		---	30	---	
T_f	Fall Time		---	10	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	4000	---	pF
C_{oss}	Output Capacitance		---	2700	---	
C_{rss}	Reverse Transfer Capacitance		---	200	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	90	A
I_{SM}	Pulsed Source Current		---	---	460	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=28A , T_J=25℃	---	---	1.2	V

Notes:

1. The EAS data shows Max. rating .The test condition is V_{DS}=40V , V_{GS}=10V , L=1mH , I_{AS}=41A.
2. Device on 40 mm x 40 mm x 1.5 mm epoxy PCB FR4 with 6 cm^2 (one layer, 70 μm thick) copper area for drain connection. PCB is vertical in still air.